

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: David P. Aschenbeck et al.) Group Art Unit 1773
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Serial No. 10/749,310) Examiner: Kevin R. Kruer
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Filed: December 31, 2003) Confirmation No. 1792
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For: MICROORGANISM RESISTANT) Attorney Docket 25320A
 SHINGLE AND METHOD OF
 MAKING SAME)
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DECLARATION OF LAWRENCE J. GRUBKA

Commissioner For Patents
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I, Lawrence J. Grubka, declare and state as follows:

1. I am a Senior Engineer employed by Owens Corning at the Owens Corning Technical Center in Granville, Ohio. I joined Owens Corning in 1977 after obtaining my Bachelor of Science degree in Mechanical Engineering from the Michigan State University in 1972 and a Masters degree in Mechanical Engineering from the California Institute of Technology in 1974. I have worked in various research capacities for Owens Corning for approximately 22 years. Most of my work at Owens Corning has been in the area of roofing and asphalt products. I have been named as an inventor on at least 14 issued U.S. patents.

2. As part of my work at Owens Corning, I have been named as a project leader or lead researcher on a number of shingle-related research projects. These shingle-related research projects include development and application of algae and microorganism resistant shingle granules, and development and application of algae and microorganism resistant shingle coatings. As a project leader or lead researcher

on the shingle-related projects, I studied the effectiveness of various algae and microorganism resistant shingle materials and designs, and evaluated various manufacturing methods of algae and microorganism resistant shingles that would provide an effective, aesthetically pleasing algae and microorganism resistant shingle.

3. It is my opinion that the level of ordinary skill in the field of shingle design is that of a product or process engineer with at least a bachelor's degree in engineering or science, and with at least five years of shingle process or product design experience.

4. One problem commonly facing homeowners and others having asphalt shingled roofs, among other types of roofs, has been the growth of algae and fungus on the exposed surfaces of the roof. On a roof covered with asphalt shingles, this problem manifests itself as severe discoloration of the exposed shingle surfaces.

5. To combat the problems associated with the growth of fungus, algae, and other microorganisms upon the exposed surfaces of roofing shingles, it is generally known to include anti-microorganism granules or other particles upon the exposed surfaces of the shingles. The anti-microorganism granules can be any desired anti-microorganism granules, such as for example, copper and/or other metals such as zinc, or particles of metallic copper or zinc. As is known, when exposed to moisture, the anti-microorganism granules, such as copper granules, are oxidized and slowly release or leach ions which have a toxic effect on microorganisms such as algae and fungi, and thereby inhibit their growth.

6. I have read the above-identified patent application (serial number 10/749,310), entitled "MICROORGANISM RESISTANT SHINGLE AND METHOD OF MAKING SAME", and have reviewed the drawings. I note that the independent claims define a method of manufacturing a microorganism resistant roofing shingle.

7. I have read U.S. Patent No. 3,084,059 to Ingram, which discloses a filler roofing material, consisting of rock particles of varying sizes applied to molten asphalt, and U.S. Patent No. 6,585,813 to Kiik which discloses covering asphaltic roofing shingles with anti-microbial copper or tin particles.

8. The roofing material in the Ingram reference is structurally different than the first portion of granules deposited on the asphalt coated sheet as claimed in the above-identified patent application for several reasons.

9. First, the roofing material of Ingram is generally evenly distributed throughout the asphalt matrix. This results in roofing material at the top surface of the shingle, the bottom surface of the shingle and all regions in the asphalt matrix. In contrast, the above-identified patent application has a first portion of granules applied to the asphalt coated sheet in such a manner that the first portion of granules remains substantially on the upper surface of the asphalt coated sheet.

10. Second, the roofing material of Ingram is a mixture of uncoated rock particles. The roofing material can also be uncoated waste or by-product materials, such as such as ceramic scrap, tile scrap and furnace slag. In contrast, the first portion of granules applied in the above-identified application are shingle granules, which are well known to those skilled in the art as materials being treated with a ceramic coating. The ceramic coating provides a protective coating to the granules thereby allowing the granules to protect the shingle from harmful ultraviolet light. Anyone skilled in the art would recognize the difference between shingle granules and the uncoated roofing materials of Ingram.

11. Third, the general purpose of the roofing material of the Ingram reference is to provide a low cost roofing material to displace a voluminous quantity of the asphalt matrix such that the use of the asphalt is extended and the costs are minimized. For such a purpose, the use of varying sizes of scrap materials, such as ceramic scrap, tile scrap and furnace slag is ideally suited. The first portion of granules used in the above-identified application has the purposes of protecting the asphalt from harmful UV light and presenting an aesthetically pleasing roof appearance. As the first portion of granules is commonly visible on the shingles of an installed roof, the shingle granules commonly are a generally uniform size and a desirable coloring. The desirable coloring can be such to provide the overall appearance of the roof (as in a weathered or slate appearance). Conversely, there is no requirement that the roofing material disclosed in the Ingram reference have a

generally uniform size and have a desirable color that provides or enhances the overall appearance of the roof.

12. Lastly, I also note that the Ingram reference discloses a roofing material that is intended to be relatively inexpensive (page 1, lines 58-61) thereby allowing the use of waste or scrap materials such as ceramic scrap, tile scrap and furnace slag. In contrast, the first portion of granules in the above-identified application has requirements size consistency and coloring. These requirements result in granules that are relatively expensive compared to filler roofing material. Given the cost difference between the roofing material disclosed in Ingram and the first portion of granules claimed in Applicants' amended independent claims 15, 16 and 23, no one skilled in the art would ever use the first portion of granules as the roofing material in Ingram.

13. The combination of the Ingram and Kiik reference fails to disclose the method of the above-identified application for several reasons. First, the combination of the Ingram and Kiik references fails to provide a first portion of granules applied to the asphalt coated sheet in such a manner that the first portion of granules remains substantially on the upper surface of the asphalt coated sheet. Second, the combination of the Ingram and Kiik references fails to provide a second portion of granules, comprising a mixture of granules and microorganism resistant granules, applied over the first portion of granules. Lastly, the combination of the Ingram and Kiik references fails to provide a two step process including a first step of applying a first portion of granules to the asphalt coated sheet in such a manner that the first portion of granules remains substantially on the upper surface of the asphalt coated sheet, and a second step of applying a second portion of granules, comprising a mixture of granules and microorganism resistant granules, applied over the first portion of granules.

14. All statements made herein of my own knowledge are true, and all statements made on information and beliefs are believed to be true.

15. These statements were made with the knowledge that willful, false statements and the like so made are punishable by fine or imprisonment, or both, under

§1001 of Title 18 of the United States Code and that such willful, false statements may jeopardize the validity of the application or any patent issuing therefrom.



Lawrence J. Grubka

Date: 4/16/2008